

# The Relationship Quality of Life of Children and Internal, Family's Environment Factors : Focusing on the Presence of Dreams for the Future in Children

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# 子どもの生活の質 (QOL) における内的要因と

## 家庭環境との関連

### —将来の夢の有無に着目して—

The Relationship Quality of Life of Children and Internal, Family's Environment Factors

—Focusing on the Presence of Dreams for the Future in Children—

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#### 邦文要約

子どもの生活の質(QOL)は、子どもの年齢や性別、心身の状態が影響を与えることが報告されている。さらに、親の人間関係(ソーシャル・ネットワーク)や経済的余裕も子どもの QOL に影響を与えうることが明らかにされている。しかし、子どもの将来の夢の有無と QOL との関連については調査がない。本研究の目的は、子どもの生活の質(QOL)と将来の夢の有無との関連を明らかにすることである。小学生の児童およびその親を対象に、留め置き法によるアンケート調査を実施した。児童に対する調査内容は、将来の夢の有無とその内容および小学生版 QOL 尺度にて QOL を調査した。親に対しては、近所付き合いや経済的余裕に関するアンケート調査を実施した。132 名の子どもと 99 名の親からの回答を統計学的に分析した結果、27 名(20.5%)の子どもが将来の夢がないと回答した。夢がない子どもは夢のある子どもと比較して、有意に QOL 総得点が低かった ( $p<0.05$ )。さらに、QOL の下位項目においても、夢がない子どもは夢のある子どもと比較して、精神的健康、自尊感情、学校生活の領域の得点が有意に低かった ( $p<0.05$ )。さらに、子どもの年齢、性別、病気の有無、親の近所づきあいや経済的余裕といった交絡要因を統計学的に調整した結果、将来の夢のない子どもは QOL 総得点および精神

的健康、自尊感情の領域得点が有意に低かった ( $p<0.05$ )。子どもの QOL の向上には、子どもが将来の夢を抱けるように支援していくことが重要であると考えられた。

#### I. Introduction

Quality of life (QOL) is an important aspect of human health. The development of assessment scales for QOL has progressed, and such scales have become common in healthcare research and clinical settings. In fact, QOL scales such as the world health organization quality of life assessment (WHOQOL)<sup>1)</sup> and MOS 36-item Short-Form Health survey (SF-36)<sup>2)</sup> are generally used to assess QOL in many scientific studies. On the other hand, the WHOQOL and SF-36 were developed to assess the QOL of adults, and it is not possible to evaluate the QOL of children using these scales. However, evaluating the QOL of children is an important indicator of child health.

In response, a scale specifically for assessing children's QOL has been developed<sup>3)</sup>, and a Japanese version was also created<sup>4)</sup>. Although adult's QOL is generally regarded as important and many relevant studies had been conducted, there are relatively few studies investigating the QOL of children<sup>5)</sup>. These include studies

investigating the factors influencing the QOL of children using a QOL scale specific to children <sup>46,7)</sup>. These previous studies suggest that the child's age, sex, mental and physical condition <sup>4)</sup>, social network <sup>6)</sup>, and the frequency of conversations with their mother <sup>7)</sup> influence their QOL. Furthermore, the authors of this study previously investigated the relationship between environmental factors and the QOL of children <sup>8)</sup>. Our results indicated that the parent's social network and the household financial situation affect the QOL of children. Based on the results of these previous studies, various physical, psychological and social factors, as well as basic characteristics such as the age and sex of the child are suggested to influence the QOL of children. However, these factors reported in previous studies are difficult to change. In addition, regarding the mental and physical condition of children, the definition of reversibility is difficult except for acute status. In order to construct means of support to maintain and improve children's QOL, it is necessary to clarify which factors related to the QOL of children can be changed or reversed.

On the other hand, the relationship between satisfaction with school life and the "skills necessary for daily life" has been investigated in the research field of pedagogy <sup>9)</sup>. Ito et al. <sup>9)</sup> defined the "skills necessary for daily life" as ability/skill, social adaptability, attitude/sense of value, self-growth, and satisfaction with school life and found it to be one aspect of QOL in children. They also found ability/skill and self-growth to be related to satisfaction with school life <sup>9)</sup>. Ability/skill refers to communication skills, and self-growth ability refers to the presence of dreams for the future <sup>9)</sup>. In other words, it seems that communication skills and the presence of dreams for the future are as-

sociated with QOL in children. If it can be clarified that the presence of dreams for the future is associated with QOL, it may be possible to contribute to the development of a simple tool to evaluate QOL in children and to construct means of support for maintaining and improving QOL in children. Therefore, the aim of this study was to clarify the relationship between the QOL of children and the presence of dreams for the future.

## II. Methods

### 1. Participants

Elementary school children and their parents who lived in public housing in S City, Kanagawa Prefecture, Japan were recruited for this study. The children and their parents who were the participants of this study were extracted from the PTA list of the children's elementary school.

### 2. Data collection

Data were collected from self-completed questionnaires. The questionnaires were distributed individually by research assistants to all participants (elementary school children and their parents), and 1 week after distribution, the research assistants visited the participants again to collect the completed questionnaires. The research assistants were also residents of public housing in S City. Regarding the questionnaires, one self-completed questionnaire was included for elementary school children and one self-completed questionnaire was included for their parents; we asked the children and parents to answer their respective questionnaire.

With regard to the questionnaire form for elementary school children, we used the Japanese version of the Questionnaire for Meas-

uring Health-Related Quality of Life in Children (KINDL<sup>R</sup>)<sup>3)</sup>, which has verified reliability and validity<sup>4,10)</sup>, to investigate the QOL of elementary school children. This scale consists of 24 question items, and responses for each item are given on a five-point Likert scale. The Japanese version of KINDL<sup>R</sup> is divided into the following six dimensions to assess QOL: physical well-being, emotional well-being, self-esteem, family, friends, and school. Using the responses given on the five-point Likert scale, both the total score and sub-scores of each dimension are converted from 0 to 100 points, with higher score indicating a higher QOL<sup>4,10)</sup>. In addition, we asked the about the child's age, sex, presence or absence of disease, presence or absence of siblings, and presence or absence of dreams for the future in the questionnaire for children. To investigate the presence or absence of dreams for the future, the following question was asked: "What is a dream you have for the future?". The answer was requested by free description. If the children answered "none" or did not respond to the question at all, we categorized it as the absence of dreams. All responses with the exception of "none" and no response were categorized as the presence of dreams. These categories were used in all statistical analyses.

In the questionnaire form for parents, we investigated the relationship with neighbors and the stability of household finances. Regarding the relationship with neighbors, we asked about the depth of relationships and the number of neighbors with whom they associated. Responses for the depth of relationships were given on the following four-point Likert scale: 1) we cooperate with each other,<sup>2)</sup> we talk with each other,<sup>3)</sup> we greet each other, and<sup>4)</sup> no communication at all. Regarding the stability of

household finances, we investigated whether there were concerns about unexpected expenses, and whether there was financial leeway for hobbies and luxuries with responses for each question given on a four-point Likert scale. The relationship with neighbors and the household financial situation were adopted as confounding factors against QOL in accordance with a previous study<sup>8)</sup>.

### 3. Ethics

All questionnaires were anonymous in order to keep the personal information of the participants confidential and to prevent the identification of individual participants. Further, the researchers were not involved in the process of extracting participants from the PTA list. In addition, when we distributed the questionnaire forms to the participants, we explained that responding to the questionnaire was voluntary, that results of this survey would be used only for academic purposes and that returning a completed questionnaire would be taken as agreeing to participate in the study. This study was approved by the Kyoritsu Women's University research ethics review board (approval number: KWU-IRBA #15091).

### 4. Statistical analysis

To investigate the relationship between children's QOL and the presence of dreams, differences in the total score and sub-scores of the KINDL<sup>R</sup> were analyzed by the presence or absence of dreams using an unpaired t test. To determine the confounding factors for QOL, the relationship between KINDL<sup>R</sup> scores and the child's age, sex, presence of disease, presence of siblings, parents' relationship with neighbors, and household financial situation were analyzed using an unpaired t test or Spearman's rank

correlation coefficient. Finally, multiple regression analysis adjusted for confounding factors was conducted with KINDL<sup>R</sup> scores as the dependent variable and the presence of dreams as the independent variable in order to determine the relationship between QOL and the presence of dreams. All statistical analyses were performed using the R programming language and environment (R version 3.2.1)<sup>11)</sup>. The level of statistical significance was set at 5%.

### III. Results

Valid responses were obtained from 132 elementary school children and 99 of their parents. The valid response rate was estimated at about 45% since the questionnaires were distributed to about 280 children and about 220 parents. The mean age of the children who responded to the questionnaire was 9.1±1.9 years, 56 (42.4%) were boys, 17 (12.9%) had no siblings, and 19 (14.4%) indicated presence of a disease. 27 children (20.5%) were classified as having the absence of dreams according to the

definition above.

As for the depth of parents' relationships with neighbors, the response of "we greet with each other" was the most frequent (45 parents, 45.5%), and less than four was the most frequent response for the number of people with whom they associated (47 parents, 47.5%). Regarding the household financial situation, 94 parents (94.9%) answered that they had concerns about unexpected expenses, and 37 parents (37.3%) had some financial leeway for hobbies and luxuries.

The total KINDL<sup>R</sup> score in children was 71.6±12.2 points, and the score of each of the six dimensions were as follows: physical well-being was 79.2±16.1 points, emotional well-being was 82.6±16.4 points, self-esteem was 54.1±23.4 points, family was 70.5±16.0 points, friends was 78.3±15.3 points, and school was 65.1±20.6 points. The total score and the scores for emotional well-being, self-esteem, and school were significantly higher in children with dreams than in those without (Table 1). Based on the results of univariate analysis, the presence of dreams,

Table 1. Presence or absence of dreams for the future and KINDL<sup>R</sup> scores

	Presence of dream n=27	Absence of dreams n=105	p value†
	Mean ± SD	Mean ± SD	
Physical well-being	80.3±16.2	74.8±15.1	0.112
Emotional well-being	84.4±16.3	75.2±14.9	0.010*
Self-esteem	56.5±23.7	44.4±20.0	0.016*
Family	70.4±16.9	70.6±12.2	0.961
Friend	79.6±15.6	73.1±13.2	0.052
School life	67.3±20.5	56.7±19.1	0.017*
Total score	73.1±12.5	66.0±9.0	0.008*

†: Comparison of KINDLR scores between presence of dream and absence of dream. Comparison was performed using unpaired t test.

\*: The level of statistical significance was less than 5 percent.

sex of the child and financial leeway for hobbies and luxuries were significantly related to the total KINDL<sup>R</sup> score and were therefore regarded as factors associated with QOL in children. In addition, the presence of disease in children and the depth of parents' relationships with neighbors were significantly related to emotional well-being score, and the sex of the child was significantly related to self-esteem score. Finally, the sex and age of the child and financial leeway for hobbies and luxuries were related significantly to school score. In order to determine the relationship between the presence of dreams and QOL in children, multiple regression analysis was performed. The results showed the presence of dreams was significantly associated with the total KINDL<sup>R</sup> score, emotional well-being score, and self-esteem score (Table 2). The total KINDL<sup>R</sup> score, emotional well-being score, and self-esteem score in children with dreams were significantly higher than in those without.

#### IV. Discussion

This study examined the relationship between children's QOL and the presence of dreams for the future through a cross-sectional survey. Results showed that even after adjusting for confounding factors such as children's own attributes and parental socio-economic factors, children who had dreams for the future had higher QOL. It has been reported that children's QOL is affected by factors such as the child's age and sex <sup>4)</sup> and parental socio-economic factors <sup>8)</sup>, but studies examining the relationship between children's QOL and the existence of dreams for the future are not evident in previous research. Consequently, the result that the existence of dreams for the future has an independent effect on

QOL seems to be a novel finding.

In terms of the relationship between children's QOL and the existence of dreams for the future, univariate analysis on each KINDL<sup>R</sup> subscale revealed a relationship between the existence of dreams for the future and the three dimensions of emotional well-being, self-esteem, and school. On the other hand, there was no statistically significant relationship between the dimension of school and the existence of dreams for the future when multiple regression analysis was conducted. A previous study reported a relationship between the level of satisfaction with school and the existence of dreams for the future <sup>9)</sup>. Although the results of this study were not consistent with that previous study, the influence of factors such as the age and sex of the child and the household financial situation were not taken into account in the previous study. It has been pointed out that socio-economic disparities are a cause of educational disparities and lifestyle habit disparities, which consequently influence health status even among children <sup>12)</sup>. In other words, there is a strong possibility that economic factors have a major influence on children's school life. Further study is required regarding this issue.

From the above, it seems that there is a relationship between the QOL dimensions of emotional well-being and self-esteem and the existence of dreams for the future. It is difficult to explain the precise reasons for the influence of the existence of dreams for the future on emotional well-being and self-esteem from the results of this study alone. However, one possibility may be that emotional well-being is assessed by the existence of joy and interest in things. Accordingly, it can easily be conjectured that not having dreams for the future makes it

Table 2. Relationship between the presence of dreams for the future and QOL according to multiple regression analysis

Model	Dependent variable	Independent variables	B †	β ‡	p value
1	Emotional well-being	Absence of dream	-8.85	-0.22	0.013*
		Absence of disease	8.99	0.19	0.026*
		The depth of relationships with neighbors (poor)	-8.85	-0.23	0.009*
		(intercept)	93.13		<0.001*
<i>Test statistic of multiple regression analysis in model 1</i>					
R square = 0.127, F (df = 3,117) = 6.801, p<0.001*					
2	Self-esteem	Absence of dream	-11.11	-0.19	0.029*
		Child's sex (girl)	6.67	0.14	0.108
		(intercept)	52.84		<0.001*
<i>Test statistic of multiple regression analysis in model 2</i>					
R square = 0.051, F (df = 2,127) = 4.475, p<0.05*					
3	School	Absence of dream	-6.10	-0.12	0.158
		Child's age	-2.37	-0.21	0.012*
		Child's sex (girl)	7.93	0.19	0.024*
		(intercept)	88.96		<0.001*
<i>Test statistic of multiple regression analysis in model 3</i>					
R square = 0.145, F(df = 4,124) = 6.415, p<0.001*					
4	Total score	Absence of dream	-5.36	-0.18	0.038*
		Child's sex (girl)	4.88	0.20	0.021*
		Financial leeway for hobbies and luxuries (poor)	-5.98	-0.24	0.006*
		(intercept)	73.92		<0.001*
<i>Test statistic of multiple regression analysis in model 4</i>					
R square = 0.131, F (df = 3,122) = 7.302, p<0.001*					

† : Nonstandardized regression coefficient for existence of dream

‡ : Standardized regression coefficient for existence of dream

\*: The level of statistical significance was less than 5 percent.

difficult to be interested in things. With regard to self-esteem, similarly, it can be reasonably assumed that not having dreams for the future reduces children's own confidence and level of satisfaction. As a result, it can be surmised that, for children, not having dreams for the future diminishes interest in things and reduces self-confidence and level of satisfaction, which then causes decline in emotional well-being and self-esteem.

One limitation of this study is that causal relationship inferences cannot be asserted definitely as results were obtained through a cross-sectional survey. Furthermore, responses were only obtained from approximately half of the participants. The possibility that children who did not respond to the questionnaire may not have had dreams for the future and may have even lower QOL compared to the children who responded cannot be denied. Accordingly, it is possible that the existence of dreams for the future and QOL scores in this study could be estimated to be higher than in the actual population. It is necessary to survey a larger sample in order to generalize the results.

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